SOME AUSTRALIAN FRESHWATER GASTEROPODA

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[Read 11 June 1942]

Because of their economic importance as hosts of various trematodes parasitic in man and animals, it is extremely necessary that the systematics of the Freshwater Mollusca should be thoroughly understood.

In New South Wales intensive research has been undertaken on the sheep liver-fluke, and out of about twenty species of freshwater snails recorded from that district one, *Limnaea brazieri* Smith, was found to be the host carrier of the fluke. Similar investigations on this and other trematode worms have been carried out in South Australia by Professor T. Harvey Johnston, with consequent interesting and important discoveries. With the possible introduction of many tropical diseases with which trematode worms are associated such as *Heterophyes heterophyes, Metagonimus yokogawi, Paragonimus ringeri, Schistosoma mansoni, japonica* and *bovis* into Australia by the influx of internees, refugees, prisoners of war, etc., it is of immediate importance that our freshwater fauna be thoroughly investigated so that a strict watch may be kept to avoid the possibility of these trematodes selecting a local host.

In preparing this preliminary paper, South Australian and West Australian species were particularly studied and records for Kangaroo Island listed. Roughly the South Australian Area may be subdivided into regions each having its own assemblage of freshwater life, though these regions are not very well marked. The regions are:

(a) The Lower Murray.
(b) The creeks and rivers of the Adelaide Hills.
(c) Eyre Peninsula and Kangaroo Island.
(d) The Flinders Range and Far North of South Australia.
(e) The South-East with its odd Victorian species.

In the few previous lists which have been published numerous duplications of names have been made and preoccupied names used, while some old and valid names have been entirely overlooked. Localities have also been confused.

Genus AMERIANNA Strand 1928

Ameria Adams, 1861, P.Z. Soc., Lond., 143, preoc.; nec *Ameria* Walker 1854, Lep. Insects, Brit. Mus., **2**, 554.

Amerianna Strand 1928, Arch. Naturgesch., 92, A. 8; 1926, 63.

Adams' generic description reads: "Shell with the whorls flattened, and angulated or carinated at the posterior part; spire short, depressed." The first species following this description is *Physa* (*Ameria*) *carinata* Adams, and the description of this is: "Shell subovate, thin, pale yellowish-brown; spire very short, the apex flat; whorls three, flattened and strongly carinated posteriorly; aperture subovate, columellar plait moderate. Long, 5½ in.; diam., 3¼ in. Habitat Boyne River, Australia."

The animal of *Amerianna* has not the produced and reflected mantle lobes of *Physa* and the radula resembles that of *Planorbis* rather than *Limnaea*, and shows some affinity to that of the African genus *Isidora*.

Under this genus Adams lists the following species:

A. truncata Adams 1861, from the Calliope River, South Queensland.
A. obesa Adams 1861, from the Fitzroy River, North Queensland.
A. cumingii Adams 1861, from Port Essington, Northern Australia.
A. moesta Adams 1861, from New Zealand.

The species most closely related to this group in South Australia is *A. aliciae* Reeve 1862, from the Lower River Murray.

Some fifty species of *"Physa"* have been described from Australia. As they have nothing whatever to do with *Physa* it is proposed to place them all under the genus *Amerianna*. No doubt this will be split up by future workers, but until more animals have been examined splitting seems inadvisable. The typically carinate shell appears so different from the ordinary *tenuistriata* type with its taller spire and rounded whorls that a division seems necessary. Considering the variability in carination and length of spire, however, the species had better all remain in *Amerianna* until further information is forth-coming.

AMERIANNA ALICIAE (Reeve 1862)

Physa aliciae Reeve 1862, P.Z. Lond., 106, text fig.; *cingulata* Clessin 1886, Syst. Conch. Cab., **17**, 364, pl. li, fig. 8 (locality, South Australia). Type locality, Lower Murray.

Distribution—General in South Australia; Rivers Para, Torrens and Onkaparinga; creeks in the Mount Lofty Ranges; Lake Alexandrina and Lake Bonney near Barmera, and in water towers and pipes around Adelaide.

There is considerable variation in the strength of the keeling and length of spire in different specimens.

AMERIANNA SUBUNDATA (Sowerby 1873)

Physa subundata Sowerby 1873, Conch Icon., **19**, pl. viii, fig. 61; *pinguis* Sowerby 1873, Conch. Icon., **19**, pl. xii, fig. 93, loc. South Australia; *bullata* Sowerhy 1873, Conch. Icon., **19**, pl. xii, fig. 97, loc. South Australia.

Type Locality for *subundata* is "St. Margaret's, South Australia."

Distribution—River Torrens; Rocky River, Kangaroo Island.

Sowerby 1873 gives the following description: "Shell olive-brown, ventricose, concentrically slightly undulated; spire rather short, apex acuminated, penultimate whorl broad, rather angular, last whorl large, swelled near the suture, roundly angular; aperture large, striped with chestnut within near the border; columella fold rather thick, tortuous."

According to Cockburn, "Nomenclature of South Australia," revised edition (manuscript), Saint Margaret's, is a subdivision of the Port Adelaide district.

Although this species may yet prove to be an extreme variant of the *tenuistriata* complex, it can be picked out readily from River Torrens specimens by the solidity of the shell, faint almost obsolete spiral striae and the odd yellow and brown axial colour bands.

Physa bullata Sowerby 1873, type locality South Australia, is a juvenile specimen, quite typical of the species in general shape.

AMERIANNA TENUISTRIATA (Sowerhy 1873)

Physa tenuistriata Sowerby 1873, Conch. Icon., **19**, pl. x, fig. 85; *texturatus* Sowerhy 1873, Conch. Icon. **19**, pl., xii, fig. 95, South Australia; *smithi* Clessin, 1886, Syst. Conch. Cab., **17**, 294, pl. xlii, fig. 2, 3, River Murray; *conica* Clessin, 1886, Syst. Conch. Cab., **17**, 360, pl. li, fig. 3, South Australia; *waterhousei* Clessin, 1886, Syst. Conch. Cab., **17**, 361, pl. li, fig. 6, South Australia.

Ameria tenuistriata Gabriel, 1939, Mem. Nat. Mus. Melb., No. 11, 111, pl. i, fig. xii, Victoria.

Type Locality for *Physa tenuistriata* is the River Torrens, South Australia.

Distribution—General and common in South Australian rivers, creeks, swamps and reservoirs.

This species, like many other of the genus, is very variable, and consequently many names have been given to it. Some of these synonyms have not previously been listed by Australian authors. Gabriel, 1939, recorded five Victorian varieties under a trinominal nomenclature, but this seems inadvisable as the "subspecies" thus named are probably only local variants.

Physa texturata Sowerby 1873, has strong axial and slightly less strong spiral striae and the shell is thick, sculpture coarse.

Physa smithi Clessin, 1886, is a thin-shelled faintly striate variant.

Physa conica Clessin, 1886, is a very narrow species according to the figure and is unlike any Australian shell known. It is possible that there has been some error in type locality. It is, however, described as *"minute striata"* and may be an inaccurately figured form of *P. tenuistriata.*

Physa waterhousei Clessin, 1886, is a direct synonym of *P. tenuistriata* Sowerby, the figure by Clessin being typical.

AMERIANNA SUBACUTA Cotton and Beasley 1941

Amerianna subacuta Cotton and Beasley, 1941, S. Aust. Nat., **21,** No. 1, 17.

Holotype from River Torrens at Marden, South Australia, Reg. No. D. 19081, South Australian Museum.

Distribution—Creeks running from the Mount Lofty Ranges; Adelaide Plains.

This species was in the South Australian Museum collection under the name *Physa pyramidatus* Sowerby. Sowerby's species was described from "Australia," but has since been recognised as the common Victorian and North Tasmanian species, which is considerably larger and more elongate than any South Australian species.

AMERIANNA LINCOLNENSIS (Clessin 1886)

Physa lincolnensis Clessin 1886, Syst. Conch. Cab., **17,** 363.

Type Locality—Port Lincoln, South Australia.

Distribution—Eyre Peninsula and Kangaroo Island.

This long-spired, smooth species appears different from other species recorded from South Australia. It does not show the decussate sculpture of *tenuistriata* and its allies and is a much more solid shell than its nearest relative *subacuta.* Until further material is available to prove or disprove the validity of the species it is here listed as distinct.

Amerianna gabrieli nom. nov.

Physa (*Ameria*) *truncata* Adams 1861, P.Z. Soc., 143; nec *Physa truncata* Bourguignat 1856, Amern. Malac., **1,** 170, pl. xxi, fig. 5-7.

Type Locality—Calliope River, South Queensland.

Distribution—Rivers of South Queensland.

The name *truncata* introduced by Adams for this South Queensland species with the truncate spire is pre-occupied by *truncata* Bourguignat, an entirely different North African species. The above name, after the noted Victorian conchologist, C. J. Gabriel, is therefore introduced.

The Australian species of *Amerianna,* with type localities, listed according to the various river systems are as follows:

(1) The Darling, Murrumbidgee, Murray and their tributaries and the river captures of South-East Queensland.

Amerianna novaehollandiae Blainville 1925, Macquarie River, New South Wales, originally described from "New Holland"; *lessoni* Smith 1882, Australia

= *novaehollandiae* Lesson 1830, New Holland; *aliciae* Reeve 1862, Lower Murray, South Australia = *cingulata* Clessin 1886, Lower Murray, South Australia; *pectorosa* Conrad 1866, Bogan River, New South Wales; *subundata* Sowerby 1873, Adelaide Plains, South Australia = *pinguis* Sowerby 1873, South Australia = *bullata* Sowerby 1873, South Australia; *australiana* Conrad 1850, Bogan River, New South Wales; *tenuistriata* Sowerby 1873, River Torrens, South Australia = *texturatus* Sowerby 1873, South Australia = *smithi* Clessin 1886, South Australia = *conica* Clessin 1886, South Australia = *waterhousei* Clessin 1886, South Australia = *puncturata* Sowerby 1874, South Australia; *subacuta* Cotton and Beasley 1941, River Torrens, South Australia; *confluens* Hedley 1917 Echuca, Victoria.

(2) Rivers of Eastern New South Wales, also Victoria and Northern Tasmania.

Amerianna gibbosa Gould 1847, "New South Wales," Cooks River, near Sydney, coastal New South Wales = *adamsiana* Canefri 1873, Australia = *grayi* Smith 1883, New Holland = *novaehollandiae* Gray 1834, New Holland = *novaehollandiae* Sowerby 1873, New Holland; *marginata* Kuster 1844, "New Holland" probably coastal New South Wales = *novaehollandiae* Anton 1938, New Holland =*ludwigii* Kuster 1844, New Holland; *acutispira* Tryon 1886 "Australia probably Victoria; *yarraensis* Tenison Woods, Upper Yarra, Victoria; *etheridgii* Smith 1882 Yan Yean Reservoir, Victoria, may be a synonym of *acutispira; pyramidata* Sowerby 1873, 'Australia" probably Flinders Island, Bass Strait, also found in Victoria and Northern Tasmania; *aciculata* Sowerby 1873, "New South Wales" probably Coastal New South Wales; *fusiformis* Nelson and Taylor 1879, Richmond River, New South Wales; *kershawi* Tenison Woods 1878, Upper Yarra, Victoria ;*aperta* Sowerby 1873, Hamilton, Northern Tasmania; *tasmanica* Tenison Woods 1875, Great Lake, Central Tasmania; *tasmanicola* Tenison Woods 1875, Mount Mary, central east coast Tasmania; *eburnea* Sowerby 1874, near Launceston, North Tasmania = *attenuata* Sowerby 1874, Lake Dulverton, North Tasmania, closely allied to *pyramidata; ciliata* Tenison Woods 1875, Lake Dulverton, North Tasmania; *vandiemenensis* Sowerby 1873, Northern Tasmania; *kreftii* Clessin 1886, Calverts Creek, New South Wales.

(3) Coastal Rivers of South Queensland and North New South Wales from Bundaberg to Grafton.

Amerianna producta Smith 1882, Clarence River, Grafton, New South Wales; *carinata* Adams 1861, Boyne River, Queensland; *gabrieli* Cotton 1942, Calliope River, Southern Queensland = *truncata* Adams 1861, preoc.; *brisbanicus* Nelson and Taylor 1879, Brisbane, River Brisbane, Queensland; *duplicata* Sowerby 1873, Wide Bay, Queensland; *tortuosa* Clessing 1886, "Urara River, undoubtedly Orara River, tributary of the Clarence River, Northern New South Wales; *multispirata* Clessin 1886, "Urara River," *i.e.,* Orara River, Northern New South Wales.

(4) Coastal Rivers of Queensland, from Bundaberg northwards.

Amerianna obesa Adams 1861, Fitzroy River, Queensland; *beddomei* Nelson and Taylor 1879, Townsville, Queensland; *gracilenta* Smith 1882, Endeavour Queensland, *queenslandica* Smith 1882, Dawson River, Queensland.

(5) Coastal Rivers of the Northern Territory from Port Essington to the Queensland Border.

Amerianna cumingi Adams 1861, Port Essington, north Western Australia; *reevei* Adams and Angas 1863, Arnheim Land, Northern Australia; *bonushenricus* Adams and Angas 1863, Arnheim Land, Northern Australia; *badia* Adams and Angas 1863, a tributary of the Adelaide River, Arnheim Land, Northern Australia; *olivacea* Adams and Angas 1863, Arnheim Land, Northern Australia; *conncinna* Adams and Angas, Arnheim Land, Northern Australia.

(6) The Coastal Rivers of Middle Western Australia from Port Essington southwards to Geraldton.

Amerianna exarata Smith 1882, Depuch Island, North Western Australia; *cumingi* Adams 1861, Port Essington, North Western Australia.

Specimens seem to indicate that these may probably extend southwards. Otherwise this region has not been investigated as far as the freshwater shells are concerned.

(7) The Coastal Rivers of South Western Australia, from Geraldton in the north to the western end of the Great Australian Bight.

Amerianna georgiana Quoy et Gaimard 1832, King George Sound, Western Australia; *australis* Kuster 1844, Western Australia = *elongata* Menke 1843 (preoc. Say 1821), South Western Australia; *breviculmen* Smith 1882, King George Sound, Western Australia; *quoyi* Smith 1882, King George Sound, Western Australia; *tenuilirata* Smith 1882, Swan River, Western Australia; *decorata* Thiele 1930, Brancaster, Upper Blackwood District, near Cape Leeuwin, South Western Australia.

(8) The Rivers and Lakes of Central Australia westward of the Darling, and embracing the Coastal Area of the Great Australian Bight.

Amerianna lincolnensis Clessin 1886, Port Lincoln, Eyre Peninsula, South Australia.

The genus *Isidorella* which is widely spread in this area seems to take the place of *Amerianna* so common elsewhere, though species of *Amerianna* occur there and will be described in a later paper.

(9) The Rivers of Southern Tasmania.

Amerianna nitida Sowerby 1873, South-east Tasmania; *mamillata* Sowerby 1873, Bruni Island, South Tasmania; *huonensis* Tenison Woods 1875, Huon River, South Tasmania = *legrandi* Tenison Woods, Richmond, South Tasmania = *huonicola* Tenison Woods 1875, Upper Huon River, South Tasmania; *tasmanicola* Tenison Woods 1875, Mount Murray, east coast Tasmania; *bruniensis* Sowerby 1874, Bruni Island, South Tasmania.

Genus ISIDORELLA Tate 1896

Isidorella Tate 1896, Horn Exped., 1, 212.

Genotype *Physa newcombi* Adams and Angas.

The characters of this genus may be summarised as follows: Shell oval, last whorl much inflated, peritreme continuous, adnate to the parietal wall and forming a false umbilicus; columella without a fold; periostracum horny, raised into spiral fringes of hairs and into imbricating folds at the suture; spiral rows of hairs superimposed on the spiral striae of the test. Animal with tentacles slender, suddenly dilated at the base of the upper outer side, the eyes on the inner base of the tentacles, the mantle not exsert, with a plain margin; dentition related to *Planorbis*.

The following Australian species belong to this genus: *newcombi* Adams and Angas, 1863, from a pond near Mount Margaret, Central Australia = *physopsis* Cooks, 1887, "Australia" = *contortula* Clessin, 1886, "Australia"; *subinflata* Sowerby, 1873, South Australia; *rubida* Cotton and Godfrey, Yabmana, Franklin Harbour, Eyre Peninsula, South Australia; *brazieri* Smith 1882, Ashfield, near Sydney, New South Wales; *pallida* Smith 1882, Rooty Hill, near Chatsworth, New South Wales; *major* Smith 1882, Burnett River, Queensland; *ferruginea* Adams and Angas, 1863, from a tributary of the Adelaide River, Arnheim Land, North Australia; *hainesii* Tyron, 1886, Australia—probably Victoria; *pilosa* Tenison Woods, 1878, Melbourne, Victoria = *crebreciliata* Tenison Woods, Caulfield, Victoria = *hirsuta* Tenison Woods MSS., Tasmania; *egregia* Preston, North Western Australia.

ISIDORELLA NEWCOMBI (Adams and Angas 1863)

Physa newcombi Adams and Angas 1863, P.Z. Soc., 1863, 416.

Type Locality—Pond near Mount Margaret, Central Australia.

Distribution—Central Australia Fifteen Mile Creek, River Finke country, Storm Creek, Alice Springs.

ISIDORELLA SUBINFLATA (Sowerby 1874)

Physa inflata Adams and Angas, 1864, P.Z. Soc., **39**, (pre-occupied); nec *inflata* Lea, 1941, P. Am. Phil. Soc., **11**, No. 17, 32; nec *fontinalis inflata* Moquin-Tandon, 1855, Hist. Nat. Moll., **11**, 451, pl. xxxii, fig. 13; *subinflata* Sowerby 1874, Conch. Icon., pl. i, fig. 4.

Isidora newcombi hedleyi Clench, 1926, J. Conch., **18**, No. 1, 12.

Type Locality—South Australia (*subinflata*), Wakefield River, South Australia (*inflata*).

Distribution—River Torrens, Wakefield River, River Para, River Angas, Mount Pleasant, Penola, Tatiara Creek, Wirrabara; also Rocky River, Kangaroo Island.

ISIDORELLA RUBIDA Cotton and Godfrey 1932

Isidorella rubida Cotton and Godfrey 1932, S. Aust. Nat., **13**, 160, pl. ii, fig. 7.

Type Locality—Yabmana, Franklin Harbour, Eyre Peninsula, South Australia.

Distribution—Eyre Peninsula; Kangaroo Island.

Shell ovate-globose, solid, dark reddish-brown in life; aperture violet within, margin of columella and outer lip white; colour frequently faded in dead shells. Animal carmine coloured. Height 13 mm., diameter 10·5 mm. The species is best described as intermediate in shape between *subinflata* and *newcombi*. The colour of the animal and shell is distinctive and quite different from either species.

Genus **Austropeplea** gen. nov.

Genotype *Limnaea papyracea* Tate 1889, Trans. Roy. Soc. S. Aust., **3**, 103, pl. iv, fig. 5 = *Lymnaea aruntalis* Cotton and Godfrey, 1938, Gastr. S. Aust., 36.

Shell ovate, thin, shining, axially wrinkled, spire short, whorls rounded at the sutures, last whorl ovate-oblong, anteriorly expanded; outer lip sinuously produced about the middle; columella fold slender, slightly tortuous; inner lip widely and thinly spread. Animal with mantle lobes entirely covering the shell and foot and so voluminous that it cannot be wholly withdrawn into the wide-mouthed shell.

This species has been placed in *Limnaea*, genotype *stagnalis* with which there is no similarity; in *Myxas*, genotype *glutinosa* to which the shell bears little resemblance; also in *Amphipeplea* which is a synonym of *Myxas* with the same genotype; all these are European genera.

AUSTROPEPLEA ARUNTALIS (Cotton and Godfrey 1938)

Lymnaea aruntalis Cotton and Godfrey 1938, Gastr. S. Aust., 36; *Limnaea papyracea* Tate, 1880, Trans. Roy. Soc. S. Aust., **3**, 103, pl. iv, fig. 5, preoc.; nec *Limnaea papyracea* Spix, 1827, Test, Bras., 17, pl. x, fig. 5.

Type Locality—Bed of dried up marsh near Penola, South Australia.

Distribution—River Torrens; Kangaroo Island at Discovery Flat.

The species described by Spix from Brazil is quite distinct from the South Australian species. Related species are:

Austropeplea huonensis Tenison Woods, 1875, from the Huon River, South Tasmania. *A. launcestonensis* Tenison Woods, 1875, from a creek near Launceston, North Tasmania.

Bythinella pattisoni sp. nov.

Fig. 1

Holotype, River Torrens, at Paradise Park, March 1942, Reg. No. D. 14095, South Australian Museum. Height, 5 mm., width 3 mm.

Distribution—Common in rivers, creeks, water towers, pipes and reservoirs in South Australia. River Murray at Tailem Bend, Lake Alexandrina, upper reaches of the Port River, Franklin Harbour, Eyre Peninsula, Kangaroo Island at Raining Creek, Stunsail Boom River and Upper Cygnet River, Onkaparinga at Port Noarlunga, Hallett's Cove, Glenelg and Meadows.

Shell small, ovately conical, dark horn colour, frequently carrying an earthy deposit; whorls six, rounded, slightly bulbous, smooth, separating suture deep; aperture pinkish white, outer and inner lip slightly thickened and well defined; base imperforate; operculum horny but slightly calcareous, paucispiral, ear-shaped, nucleus towards the base and columella margin. The species is found in hundreds on the underside of small smooth stones in pools left in the partly dried up bed of the River Torrens. Numerous small transparent capsules about one-quarter by one-sixteenth of an inch, in the same position as the shells, are probably the egg capsules of the species. The Waterworks Department has frequently forwarded this shell in quantities to the Museum, taken from various pipes and meters.

Some of the records are as follows: Prospect, at Halstead Street, blocking water meter. Kintore Avenue, City, Teachers' Training College, from water pipe. Marryatville, blocking water meter. Burnside, Portrush Road, blocking water meter. Toorak, Grant Avenue, residence of W. A. Holden, blocking water meter, situated at fifteen feet from a 3-inch water main. In the last were also juvenile specimens of *Amerianna aliciae* Reeve.

BYTHINELLA BUCCINOIDES (Quoy et Gaimard 1835)

Paludina buccinoides Quoy et Gaimard 1835, Zool. Astrolabe, **3**, 175, pl. lviii, fig. 13, 14.

Bythinia victoriae Tenison Woods, 1878, P. Roy. Soc. Vict., **14**, 65.

Type Locality—Western Port, Victoria (*buccinoides*), Geelong (*victoriae*).

Distribution—Victoria, Northern Tasmania, and the South-East of South Australia. We have specimens in the South Australian Museum collection from Eight Mile Creek, South-East South Australia (Cleland).

TATEA RUFILABRIS (Adams 1862)

Diala rufilabris Adams 1862, Ann. Mag. Nat. Hist., (3), **10**, 298.

Tatea rufilabris Smith, 1881, Linn. Soc. (Zool.), **16**, 268, pl. vii, fig. 19; Thiele, 1929, Hand. der Syst. Weicht., **1**, 168, fig. 146; Pilsbry, 1897, Acad. Nat. Sce., Philad., 360, pl. ix, fig. 9.

Type Locality—Port Lincoln, South Australia.

Distribution—Kangaroo Island, from Cygnet and Harriet Rivers; Patawalonga, River Torrens.

Smith, 1882, writes: "The operculum is said to be calcareous, with a submarginal claw. As far as I can discover, judging from an external view, it appears to be thin, horny, paucispiral, with the nucleus subcentral, but rather towards the base or lower end."

The operculum is paucispiral, ear-shaped, nucleus towards the base and columella side; the claw is calcareous, situated at the back of the operculum, and 6-digitate with a longitudinal narrow calcareous base.

Pilsbry, 1897, figures the operculum of *Tatea paradisiaca* Pilsbry, but his crude drawing gives no idea of the claw which is also digitate. His key to the three Australian species of *Tatea,* however, is correct, and the species are certainly separable, as he suggests. They are: *rufilabris* Adams 1862, Port Lincoln, South Australia; *huonensis* Tenison Woods, 1879, genotype, Huon River, South Tasmania; *paradisiaca* Pilsbry, 1897, Eden, New South Wales. To these can be added *preissii* Philippi 1846, Western Australia = *acuta* Menke 1843, preoc., Swan River, Western Australia.

The radula definitely locates this genus in the Family Hydrobiidae.

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EXPLANATION OF PLATES I AND II

PLATE I

Fig. 1 *Tatea rufilabris* Adams, dorsal view, x 12. Fig. 2 *Tatea rufilabris* Adams, operculum, inside view, x 12. Fig. 3 *Tatea rufilabris* Adams, operculum, outside view, x 12. Fig. 4 *Tatea rufilabris* Adams, ventral view, x 12. Fig. 5 *Bythinella pattisoni* sp. nov., ventral view, x 15. Fig. 6 *Bythinella pattisoni* sp. nov., operculum, outside view. Fig. 7 *Bythinella pattisoni* sp. nov., dorsal view.

PLATE II

Fig. 1 and 2 *Amerianna subundata* Sowerby, River Torrens, S. Aust., x 3. Fig. 3 and 4 *Amerianna subacuta* Cotton, River Torrens, S. Aust., x 3. Fig. 5 and 6 *Amerianna tenuistriata* Sowerby, River Torrens, S. Aust., x 3. Fig. 7 and 8 *Amerianna lincolnensis* Clessin, Port Lincoln, S. Aust., x 3. Fig. 9 and 10 *Amerianna breviculum* Smith King George Sound, W. Aust., x 3. Fig. 11 and 12 *Amerianna tasmanicola* Tenison Woods, Mount Murray, Tasmania, x 4. Fig. 13 and 14 *Amerianna pyramidata* Sowerby, Victoria, x 2. Fig. 15 and 16 *Amerianna ciliata* Tenison Woods, Lake Dulverton, Tasmania, x 3.